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Rare-earth pyrit concrees mineralization in the deposits of Tatarstan middleurish age

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Abstract

© SGEM2017. All Rights Reserved. In the Oxford-Kimmeridgian deposits stages of the territory of western Tatarstan, it was discovered a field of stratiform pyrite mineralization. In this field clays are enriched by pyrite nodules. X-ray fluorescent and electron microscopic analyzes during the study of pyrite nodules revealed an increased content of rare-earth phosphates elements (monazites) in them. Monazites are mainly represented by $LaPO_4$, $CePO_4$, $(La,Ce)PO_4$, $(Nd,La)PO_4$ and $SmPO_4$. They form single xenomorphic grains and short-prism crystals. Three generations of monazites are distinguished: the first are developed along the surface of inclusions of quartz and feldspars grains, the second replace the pyrite grains, the third are developed in the pores between the pyrites grains. We propose mechanisms of the monazites stages formation based on the geochemical phosphates properties of rare earth elements.

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Keywords

Jurassic sediments, Monazite, Paleo-griffons, Pyrite concretion

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